Comments on the Portland Harbor Superfund Site Cleanup Proposed Plan

To the United States Environmental Protection Agency Region 10 from Portland Harbor Community Advisory Group

September 6, 2016

Introduction

These comments are submitted to the US EPA by the Portland Harbor Community Advisory Group (PHCAG) regarding the EPA Proposed Plan for the Portland Harbor Superfund Site. Our comments present a number of technical issues concerning the Proposed Plan and provide significant community priorities for the cleanup. We have reviewed the Proposed Plan attended briefings from EPA regional staff, conducted and participated in forums with hundreds of community members and received technical advice from an independent technical advisor (paid for by an EPA Technical Assistance Grant) as well as other technical professionals.

These comments provide detail on a number of key issues of community concern regarding the cleanup of contaminated sediments in the lower Willamette River and the long term viability of the Proposed Plan. It is unacceptable that EPA has selected as their preferred alternative, a plan that does not meet EPA's own criteria, particularly that the plan be Protective of Human and Ecological Health and that the plan have Long Term Effectiveness.

The Portland Harbor Community Advisory Group (CAG)

We are members of the Portland community, both representing organizations and participating as individuals. We include members living throughout the Portland area including close to the river and we will all be living with the remedy. It is our strongest desire that the cleanup ensure that human health is properly protected and that the clean up is effective for many future generations. The clean up should be done right the first time.

Current members of the Portland Harbor Community Advisory Group:

- Jim Robison, Chair
- Jackie Calder, Vice-Chair

- Barbara Quinn, Secretary
- Darise Weller, Treasurer
- Tom Chisholm
- Bill Egan
- Doug Larson
- Robin Plance
- Michael Pouncil
- Bob Sallinger
- John Shaw
- Jay Thiemeyer
- Kristin Yount

Organizations Represented on the CAG either now or in the past are:
Audubon Society of Portland
Cathedral Park Neighborhood Association
Environmental Justice Action Group
Linnton Neighborhood Association
Northwest Industrial Neighborhood
North Portland Odor Abatement Committee
Northwest Toxic Communities Coalition
Oregon Bass & Panfish Club
Oregon State Public Interest Research Group (OSPIRG)
Portland Harbor Community Coalition which includes:
    American Indian Movement (AIM: Portland Chapter)
    Asian Pacific American Network in Oregon (APANO)
    Czech School of Portland
    East European Coalition
    Groundwork Portland
    Iraqi Society of Oregon
    Lideres Verde
    Oregon AFSCME
    Portland Youth and Elders Council
    Right 2 Survive
    Wiconi International
    Wisdom of the Elders
Sierra Club
St. Johns Neighborhood Association
University Park Neighborhood Assocation
Willamette Riverkeeper

CAG meetings have included presentations from EPA, Lower Willamette Group, Oregon DEQ, Oregon Department of Geological and Mineral Industries, Metro, Oregon Health Authority, City of Portland, US Coast Guard, Army Corps of Engineers, Division of State Lands, site updates from PRPs, technology presentations from cleanup service providers, professors from Oregon State University and the University of Washington,

Confederated Tribes of the Grand Ronde, Yakama Nation Fisheries, the Trustee Council and presentations from community groups. We have reached out to numerous groups and organizations, plus hundreds of individuals who have attended the CAG meetings over the last 16 years.

In preparing to submit these comments, CAG members have discussed these issues with thousands of Portland area residents and numerous organizations. In addition to these comments submitted in this document, the Portland Harbor CAG concurs with and supports comments submitted by the Portland Harbor Community Coalition, Audubon Society of Portland, Willamette Riverkeeper, Dr. Peter deFur, the Yakama Nation and Sierra Club.

This document expresses the consensus of the CAG members.

1) Recommendation: Alternative G with enhancements

From the alternatives EPA has reviewed in their Proposed Plan, Alternative G with enhancements (detailed below) offers the best and most effective remediation of the Portland Harbor Superfund site. The Portland Harbor Community Advisory Group as representatives of the community recommend adoption of Alternative G with enhancements to protect human health and the environment and ensure long term effectiveness. Enhancements include added dredging, and more shoreline remedial action in order to meet goals in a known time frame and provide more removal of persistent pollutants.

PHCAG members agree with the statement that, *"Regardless of cost or controversy, achieving the expected effect of remedial actions— improvements in the environment— is of primary importance."*

EPA is required by law to utilize nine evaluation criteria when selecting an Alternative.

1. Overall Protection of Human Health and the Environment
2. Compliance with Applicable or Relevant and Appropriate Requirements (ARARs)
3. Long-term Effectiveness and Permanence
4. Reduction of Toxicity, Mobility, or Volume of Contaminants through Treatment
5. Short-term Effectiveness
6. Implementability
7. Cost
8. State/Support Agency Acceptance
9. Community Acceptance

The first two evaluation criteria are "threshold criteria", which means an Alternative must meet these criteria to even be considered.
Pages 50 to 52 of the Proposed Plan provide an analysis of the first criteria for the Alternatives considered. Following is a table summarizing that review:

Interim Targets	Performance of each Alternative reviewed					
	B	D	E	F	G	I
RAO 1	Not Achieved	Not Achieved	**Achieved**	**Achieved**	**Achieved**	Not Achieved
RAO 2	1 of 9 Achieved	2 of 9 Achieved	2 of 9 Achieved	5 of 9 Achieved	**8 of 9 Achieved**	3 of 9 Achieved
RAO 3	Not Achieved	**Achieved**	**Achieved**	**Achieved**	**Achieved**	**Achieved**
RAO 4	Least Achieved				**Most Achieved**	
RAO 5	Not Achieved	**Achieved**	**Achieved**	**Achieved**	**Achieved**	**Achieved**
RAO 6	Not Achieved	Not Achieved	Not Achieved	**Achieved**	**Achieved**	Not Achieved
RAO 7	Insufficient information to evaluate					
RAO 8	Least Achieved				**Most Achieved**	
RAO 9	Least Achieved				**Most Achieved**	

Only Alternative G consistently achieves the interim targets set for determining if the plan is protective of human and ecological health.

Fish should be as healthy and edible as those immediately upriver of the site.
It is the feeling of CAG members and our partners that a key objective of the cleanup should be to reduce the contaminant levels in resident fish to the point where the current fish advisory from the Oregon Health Authority specific to this section of the Willamette River can be removed. This is a key indicator for the health of the river, and if it is not achieved, it calls into question the entire cleanup. Institutional Controls such as signage to manage fish consumption has been shown to be ineffective and should not be used as a long term solution to the contamination of fish in the lower river. This is not only a key indicator of success, but is critically important to those people, mostly low income, native American and immigrants who rely on resident fish from the Willamette River for a portion of their family's diet.

The first of the 5 "balancing" criteria is "Long-term effectiveness and permanence." Following is a summary of the review on pages 52 to 55 of the Proposed Plan:

	Performance of each Alternative reviewed					
	B	D	E	F	G	I
RAO 1	Exceeds by order of magnitude	Exceeds within order of magnitude	Exceeds within order of magnitude	Exceeds within order of magnitude	Exceeds within order of magnitude	Exceeds within order of magnitude
RAO 2 residual risk - Site-wide	Exceeds within order of magnitude	Exceeds within order of magnitude	Exceeds within order of magnitude	**Achieved**	**Achieved**	Exceeds within order of magnitude
RAO 2 residual risk - Rivermile & SDU	Exceeds by order of magnitude	Exceeds by order of magnitude	Exceeds within order of magnitude	Exceeds within order of magnitude	**Achieved**	Exceeds within order of magnitude
RAO 2 Health Index - Site-wide	Exceeds within order of magnitude	Exceeds within order of magnitude	Exceeds within order of magnitude	Exceeds within order of magnitude	Exceeds within order of magnitude	Exceeds within order of magnitude
RAO 2 Health Index - Rivermile & SDU	Exceeds by order of magnitude	Exceeds by order of magnitude	Exceeds within order of magnitude	Exceeds within order of magnitude	Exceeds within order of magnitude	Exceeds within order of magnitude
RAO 2 Infant Health Index - Site-wide	Exceeds within order of magnitude	Exceeds within order of magnitude	Exceeds within order of magnitude	Exceeds within order of magnitude	Exceeds within order of magnitude	Exceeds within order of magnitude
RAO 2 Infant Health Index - Rivermile	Exceeds by two orders of magnitude	Exceeds by two orders of magnitude	Exceeds by order of magnitude	Exceeds by order of magnitude	Exceeds within order of magnitude	Exceeds by order of magnitude
RAO 2 Infant Health Index - SDU	Exceeds by two orders of magnitude	Exceeds by order of magnitude	Exceeds within order of magnitude	Exceeds within order of magnitude	**Achieved**	Exceeds within order of magnitude
RAO 3 - PCBs	Exceeds by order of magnitude	Exceeds by order of magnitude	Exceeds within order of magnitude	Exceeds within order of magnitude	Exceeds within order of magnitude	Exceeds within order of magnitude
RAO 3 - TCDD	Exceeds within order of magnitude	Exceeds within order of magnitude	Exceeds within order of magnitude	Exceeds within order of magnitude	Exceeds within order of magnitude	Exceeds within order of magnitude
RAO 3 - PAHs	Exceeds within order of magnitude	**Achieved**	**Achieved**	**Achieved**	**Achieved**	**Achieved**
RAO 4	"Uncertain because it is likely that not all contaminated pore water will be addressed by any alternative"					
RAO 5	"Uncertain because it is likely that not all benthic risk will be addressed by any alternative."					

RAO 6 - BEHP - Rivermile	Exceeds by order of magnitude	Exceeds by order of magnitude	Exceeds by order of magnitude	Exceeds within order of magnitude	**Achieved**	Exceeds by order of magnitude
RAO 6 - BEHP - SDU	Exceeds by order of magnitude	Exceeds by order of magnitude	Exceeds by order of magnitude	**Achieved**	**Achieved**	Exceeds by order of magnitude
RAO 6 - PCBs - Rivermile	Exceeds within order of magnitude	Exceeds within order of magnitude	Exceeds within order of magnitude	**Achieved**	**Achieved**	Exceeds within order of magnitude
RAO 6 - PCBs - SDU	Exceeds within order of magnitude	Exceeds within order of magnitude	**Achieved**	**Achieved**	**Achieved**	**Achieved**
RAO 6 - HxCDF - Rivermile	Exceeds within order of magnitude	Exceeds within order of magnitude	**Achieved**	**Achieved**	**Achieved**	**Achieved**
RAO 6 - HxCDF - SDU	Exceeds within order of magnitude	**Achieved**	**Achieved**	**Achieved**	**Achieved**	**Achieved**
RAO 6 - PeCDF - Rivermile & SDU	Exceeds within order of magnitude	Exceeds within order of magnitude	**Achieved**	**Achieved**	**Achieved**	**Achieved**
RAO 6 - TCDF - Rivermile & SDU	Exceeds within order of magnitude	Exceeds within order of magnitude	**Achieved**	**Achieved**	**Achieved**	**Achieved**
RAO 7	Insufficient information to evaluate					
RAO 8	“Uncertain because it is likely that not all contaminated pore water will be addressed by any alternative”					
RAO 9	“Uncertain because it is likely that not all contaminated river bank will be addressed by any alternative.”					

While none of the alternatives reviewed meet all of the identified goals, Alternative G is the only alternative that meets three of the goals, making it the logical starting point for an effective cleanup plan.

According to Table 15 summarizing comparisons in the Proposed Plan, the only criteria weighing against adopting Alternative G are Short-Term Effectiveness, Implementability and cost. These are all three factors of the same condition. Increased cleanup means increased cost, increased short term impacts during construction, and increased challenges to implement the full plan.

One of the primary factors weighing against adopting Alternative G, is the estimated length of time (19 years) required to complete active cleanup. Having reviewed the

analysis leading up to this estimate, we believe the actual time required for Alternative G can be shortened. The EPA review of the alternatives used a very conservative estimate of the amount of equipment that would be made available for active cleanup. Once cleanup begins, and resources are committed to the river, we believe equipment is regionally available to enable a faster completion of the construction phase by having more equipment on site and completing work at multiple sediment management areas simultaneously.

The benefits of a clean river will affect many future generations. When evaluating the balancing criteria, it is critically important to recognize that short term costs and impacts are limited in duration to the period of active cleanup while the long term benefits of a clean river, or the long term damage caused by a polluted river, will impact many generations into the future. Evaluation of the alternatives should give more weight to the criteria of Long Term Effectiveness and Permanence. There will always be short term impacts of cleanup activity, but that is outweighed by the long term benefits of having a clean river for many years into the future.

Enhancements to Alternative G:

- **Increased shoreline remediation** - Remediation of all shorelines is important to allow safe access to riverbanks and water. Fishing needs to be made safe, and clean air near the river is a must. Shoreline areas must be properly treated to ensure that they do not pose an additional risk of recontamination post cleanup.
- **Increased dredging** - The RALs for PCBs and 2,3,7,8-TCDD (dioxin) should be lowered to identify additional areas for removal in order to achieve RAO 3 for Long Term Effectiveness and Permanence.
- **Elimination of Confined Disposal Facility at Terminal 4** - Members of the community have repeatedly stated opposition to construction of a Confined Disposal Facility (CDF) at Terminal 4, Slip 1. Now that both the City of Portland and the Port of Portland have expressed their opposition to such a CDF, the option should be removed from consideration in the plan.

Alternative G with enhancements will better protect human and environmental health by removing more contaminants from the river's chain of life, achieving fish that are as safe as upriver and reaching background levels in a more reasonable and known time frame.

By removing persistent pollutants it will also lessen PCBs and other chemicals from escaping into the air causing harm to human health.

Externalized costs are omitted from the Proposed Plan in several important areas. Residents pay by being exposed to harmful health effects, including developmental problems in children if the cleanup is ineffective. The "polluter pays" law should cover all the damage caused by poor disposal practices and would be most fairly fulfilled by choosing option G with enhancements. EPA should be working to prevent the health problems and unfair health costs by more effectively cleaning up the river.

2) Requirements that must be included in the Record of Decision

The Record of Decision must include requirements for each of the following:

- That **performance assurance bonds** are in place and adequate to protect against; a) Inadequate success of the chosen remedy, and b) Failure of the remedy due to natural or man made disturbance. Assurance bonds must protect against failure of the remedy for as long as contaminants remain stored within the river. The Portland Harbor CAG wants EPA to certify that "bond assurance" meets the requirements of Guidance on Financial Assurance in Superfund Agreements as found in https://www.epa.gov/sites/production/files/2015-04/documents/fa-guide-2015.pdf
- **Legally binding source control** - At each step of responsibility for source control work, there must be legally binding agreements to ensure that all source control work is completed successfully. This means a legally binding agreement with the State of Oregon to meet federal obligations, and legally binding requirements on the responsible parties to complete successful control of the sources. - language in the proposed plan states the such a legally binding requirement "may" be used. That should be changed to ensure that it will be used.
- **Fish tissue monitoring** - Procedures for fish tissue monitoring must be clearly defined and established so that all testing is done in a uniform fashion to ensure that results can be readily compared over time to measure the success of the remedy.
- **Habitat restoration fully paid for by PRPs** - Habitat damage that occurs as a result of cleanup action, needs to be fully restored as an included requirement of the cleanup action. This is to be included as a cost of the cleanup paid for by the responsible parties.
- **No Separate Operable Units** - Although this site is equivalent to a combination of multiple Superfund sites, any attempt to divide the site into multiple Operable Units at this time would likely result in a) delayed action, caused by the need to produce separate studies, plans and orders; b) reduced effectiveness of cleanup action caused by PRPs implementing less effective cleanup plans on smaller Operable Units, especially if oversight is shifted away from EPA Regional staff; and c) reduced overall effectiveness caused by reduction of coordination between adjacent units.
- **Monitoring during the cleanup** - water, air, sound, odor, light - Continuous monitoring for the impacts of remedy construction must be required. This includes a) monitoring of water quality for release of contaminants into the water column including monitoring in the Multnomah Channel and Columbia River; b) monitoring of air quality for air volatilization of contaminants during removal; c) monitoring of sound, light and odors generated during construction for undue impacts on livability in surrounding neighborhoods. Monitoring for release of chemical contaminants must have procedures for quick turnaround of results or immediate preliminary results to ensure that corrective action can be taken in a

timely manner. Monitoring data and any corrective actions subsequently triggered need to be clearly communicated to the impacted community.

- **Annual monitoring of key metrics and contingency planning**.- Where the success of cleanup depends on a remedy that has uncertain reliability, particularly heavy reliance on Monitored Natural Recovery, then monitoring should be conducted annually to gauge success, and the plan should include specific contingencies for further action to be taken if monitoring is not showing the desired progress.
- **Community involvement** - Since the Willamette River, and the future of the river, is of great importance to the well being of thousands of Portland area residents, community involvement should be fully supported and utilized during every phase of the cleanup, including design stages and monitoring. EPA should establish strong working partnerships with community organizations such as the Portland Harbor Community Advisory Group (PHCAG) and the Portland Harbor Community Coalition (PHCC) to strengthen community participation in every stage. Community involvement during remedial design & construction needs to be continued & better defined. Meetings need to be monthly or quarterly and held in a neutral easily accessible location rather than EPA offices. Partnership with the PHCAG and PHCC should include financial support for conducting effective community outreach to low income, Native American, minority and immigrant communities who are impacted by the cleanup actions.
- The time frame for reviewing the effectiveness of cleanup needs to be 100 years at a minimum - **The remedy must last for hundreds of years** and there is no conclusive modelling on the breakdown of persistent pollutants in this river system. The effective cleanup of the Willamette River must be measured in terms of generations, not just during the period of time of active cleanup.
- **Upland Source Control should include all shorelines** - Upland Source Control needs to include all shorelines at the site, not just the previously examined 20,000 lineal yards but must address all 30,000 lineal yards to ensure that all contamination is included and remediated.
- **Include treatment for contaminated sediment** - As a general rule it is better for the future of our overall environment if dredged sediment is treated to remove or breakdown contaminants rather than stockpile it into a landfill. Treatment material has opportunities for reuse or disposal that are much lower cost than placement in a qualified facility for contaminated sediments. This includes utilizing new and emerging technologies to treat contaminated sediment. EPA should view this site as an opportunity to conduct pilot projects on promising treatment technologies.
- **Clean the river to background levels that reflect future improvements** - Where Remedial Action Levels (RALs) for cleanup are limited by existing background levels, new samples need to be tested to determine existing background levels and RALs adjusted accordingly to reflect improvements in background.
- **The final remedy must comply with state environmental quality rules**. PCBs, dioxins, and DDTs in the fish and water of the lower Willamette must meet state water quality standards at completion.

- **Require local employment**. Include a requirement that contracting, job training and recruitment will be conducted to ensure that local workers are hired for cleanup work.
- **Best Management Practices** - All work performed on the site must follow best management practices to ensure environmental protection during construction.

3) Additional Data Collection

- Data collection needs to include more research on how tidal effects, currents and prop wash will affect remediation. The Bureau of Environmental Services at the City of Portland has described the complicated systems affecting the lower Willamette: "(The) combination of large rivers interacting, dynamic geomorphology within a transitional landscape, and tidal effects transmitted up the Columbia from the ocean create some of the most complex hydrology in the Willamette Basin." This requirement should be included in the Record of Decision.
- There needs to be ongoing fish tissue tests for as long as contaminants remains in the river.
- Chemical air volatilization must be addressed as a contaminant pathway. - Both in regards to risk from leaving contaminant in place, and from the impacts of release during the active construction phase, the potential for PCBs to become airborne must be reviewed. Reference http://mediad.publicbroadcasting.net/p/wnpr/files/201508/385.__volatile_pcbs.pdf

4) Environmental justice

No set of users has the right to harm a collective resource, such as the river, for others' safe use, especially others who may not have the means to fish or swim elsewhere. Cumulative risk to the most vulnerable populations need to be addressed by more risk reduction than the current Proposed Plan recommends. River edges need to have more active remediation to offer safe access to the river for the community. A tax should be levied on polluters for any contaminants left in the river. The funds from the tax should be used to create better community access to the river. Further, it is a matter of equity that fishing, swimming, contact with sediments and other activities should be no more harmful to health in this stretch than elsewhere on the Metro area Willamette River.

Ethnic and subsistence fishers as well as houseless campers will be exposed to more contamination during construction and that needs to be addressed and offset by actions listed in the Record of Decision including continued community outreach and education. Meaningful participation should be assured throughout the remedial design and construction phases. Culturally appropriate measures should be taken to protect EJ communities until risk levels are reduced to acceptable levels.

The ROD must take into account cultural factors that amplify risk levels for specific communities. For example, members of the Hmong community in North Portland follow traditional practices that require consuming the entire fish. Efforts aimed at teaching individuals to filet the fish and remove the most contaminated tissues are not effective when confronting a long standing cultural practice. Other immigrant communities are disproportionately impacted by contaminants in the river because carp, the most heavily contaminated fish in the river, is culturally significant and greatly desired.

Cleaning the river to healthy levels would provide benefits for the local economy and has potential to provide enormous benefits to underprivileged communities. A 2012 analysis by ECONorthwest showed that cleaning the river to healthy levels would inject millions of dollars into the Portland economy and create hundreds of jobs. Each dollar spent on the cleanup would generate more than a dollar in return locally. Our environmental justice partners envision creating cleanup jobs for local underprivileged communities who have suffered harm from the river contamination – Native Americans, African-Americans, immigrants and refugees, and people experiencing houselessness. A key indicator of a successful cleanup will be the reduction of contaminants in resident fish to the point where the advisory against eating such fish specific to this stretch of the Willamette River can be removed. Healthy fish would aid subsistence fishers and trigger a significant increase in sport fishing with a subsequent boon to the local economy.

Hiring for the cleanup should be kept local whenever possible, so that the communities that have suffered the most exposure to contamination also benefit by the positive opportunities offered by the cleanup. Performance requirements should be in place to ensure that work is done with high standards for worker safety and that family living wages are paid. The use of union apprenticeship programs, community college programs and state employment training services should be used in the time leading up to and during implementation of the cleanup to help ensure that local workers are well trained in skills and workplace safety for the work to be done. This should be added to the Record of Decision.

5) Community Involvement

Although EPA worked cooperatively with the Portland Harbor CAG for many years leading up to issuance of the Feasibility Study and Proposed Plan, our experience was that cooperation and support dropped off dramatically during the final year prior to release of the Proposed Plan. This included such examples as, reduced availability to participate in CAG meetings, lack of participation in CAG sponsored community forums, and refusal to provide adequate copies of the Proposed Plan for CAG members to review. In the months approaching the release of the Proposed Plan, the CAG sponsored community forums which had 60 to 100 community members in attendance, while the EPA sponsored informational sessions that generally had very few community members attend.

It seems to have been well demonstrated that a strong working partnership with the Portland Harbor Community Advisory Group (and the partner organizations working with the CAG) would greatly increase public participation in EPA decisions. Community involvement during remedial design & construction needs to be an integral part of the process, done in partnership, and not by EPA alone. The ROD needs to include support for regular meetings of the community with EPA and the responsible parties conducting cleanup, to keep the public informed of important decisions, and opportunities to ensure that design decisions are consistent with what will best meet community desires and achieve river cleanup goals.

6) Institutional controls

Institutional Controls (ICs) such as signage warning people not to eat resident fish, are not a sufficient tool for protecting human health. Such warnings often go unheeded when an individual is faced with the choice of eating potentially contaminated fish or going hungry or if they have a cultural preference for that kind of fish.
In the Portland area we have large populations of immigrants who have come from eastern Europe and southeast Asia where carp is a common staple of the diet. The families arrive in Portland and learn that carp are plentiful in the Willamette River, so they often specifically fish for carp to feed their families a familiar food. Unfortunately the Carp in the Willamette River is contaminated to a level far beyond what Oregon Health Authority and EPA would consider safe for human consumption. These immigrant families are unknowingly endangering the health of their families and the neurological development of their children.
Among the Hmong community, who have a large presence in North Portland, a traditional feast requires consuming the entire fish, not just the fillet. Therefore, due to their customs, they are exposed to the highest levels of contaminants. Institutional Controls are simply not adequate to address strong cultural mores. The only sure way of protecting human health in such a situation is to ensure that the fish are safe to eat.
Many in the African American community have historic, cultural or family preference for resident fish and target those fish for consumption.
In regards to ecological health, it is even more difficult than with humans to get the eagles, falcons, hawks and osprey who live along the river to abide by the health advisory in limiting or avoiding resident fish.

7) Toxic waste dump / CDF

The CAG has taken a formal position against the proposed CDF at Terminal 4, Slip 1. The wider community has also rejected the proposal as reflected in a petition against it with 2000 signatures and four resolution letter against it from St. Johns, Cathedral Park, and Linnton Neighborhood Associations as well as Occupy St. Johns. In addition, the City of Portland and the Port of Portland have recognized the level of community opposition and the problems posed by the CDF and have stated their own opposition to construction of the CDF.

The construction of a CDF at Terminal 4 Slip 1 poses numerous problems, including:

a) High potential for leaching of contaminants into groundwater and the river due to the earth and sand berm design and lack of lining.
b) Potential for release of contaminated materials directly into the river caused by flooding or major earthquake causing structural damage to the berm and/or liquefaction of surrounding shoreline areas. River flood levels in 1996 were high enough to have flooded the proposed CDF, and such future flooding can be expected to happen again. According to hazard maps developed by the Oregon Department of Geology and Mineral Industries (DOGAMI) Terminal 4 is located within the 100 year flood zone, is near an active fault line with high earthquake hazard and has a high risk of liquefaction..
c) Loss of white sturgeon habitat caused by construction of the berm and CDF. The Oregon Department of Fish & Wildlife determined that juvenile sturgeon utilize the deep water habitat area adjacent to the slip. While no study of white sturgeon use of the slip itself has ever been conducted, it is known by people who frequently fish the area that sturgeon make heavy use of the slip. Since the white sturgeon population has already dramatically declined, every effort should be made to avoid further damage to the population.
d) Potential air volatilization of contaminants that could cause harm to people during the multi-year period of time during which contaminants are placed in the CDF and possibly after completion.
e) Increased impacts and delay of remedy construction caused to the cleanup by construction of the berm as noted in the Proposed plan.

8) Monitored Natural Recovery

It is critical to recognize that Monitored Natural Recovery consists of three components:

1) Natural breakdown of chemicals - heavy metals in the system do not break down, and other contaminants in the Portland Harbor break down very slowly. Extremely toxic persistent pollutants including PCBs dioxins/furans, DDTs, and PAHs as well as heavy metals found in this stretch of the river have been there from 40-100 years. Testing over the last twenty years has shown little change to the presence of these chemicals in the sediment.
2) Natural removal - to some extent clean sediment from up upriver will displace contaminated sediment. While this can reduce the immediate impact of contaminants by dispersing and diluting them downriver, most of these contaminants are also bioaccumulative meaning that they will collect and concentrate in human and animal tissue regardless of being diluted or dispersed. Spreading contaminants to the Columbia River and eventually the Ocean is not a desirable outcome.
3) Natural covering - this component is in fact the component of Natural Recovery being most heavily relied on in the Proposed Plan. There is evidence that over

time clean sediment from upriver will deposit on the river bottom covering up contaminated sediments. However, as the clean sediment makes life in the river bottom healthier, that life will interact more actively with deeper sediments, bringing those contaminants back to the surface layer. In addition, leaving contaminants buried under the river bottom, leaves open the very real risk that the material will be uncovered by any number of natural or manmade causes, including earthquake, flood and prop-scouring.

To better address the problem of contaminant uptake into the food chain, and harm to humans through exposure to fish, sediment, water or air, the cleanup plan should rely most heavily on dredging for removal.

If these chemicals are left in the river, they would continue to pose health threats to humans and wildlife for many future generations. Enhancement to natural recovery that includes the infusion of sediment with activated charcoal or biochar to bind up contaminants can be beneficial in those areas that have low levels of contamination, but care must be taken not to be over reliant on this solution.

MNR should not be the main remediation method for the lower Willamette as recommended in option I. It is not effective in addressing persistent pollutants. MNR should only be used in low risk contamination areas. The leaving in place of chemical waste with MNR is likely to result in recontamination of the river due to flooding, scouring action, tidal action, prop wash, and the expected future earthquake. The lower Willamette does not offer the correct natural conditions to favor effective use of MNR. It is unreasonable to expect MNR to address persistent contaminants that have remained in the river sediments at unacceptable levels for over 50 years.

Where MNR is used, with or without enhancements, monitoring should be conducted annually to ensure that progress is acceptable and contingency plans should be included in the ROD for further action if progress is not satisfactory.

9) Capping

The Portland Harbor, a 10+ mile long stretch of river with 13 highly toxic hotspots and active port facilities throughout, is an industrial megasite. There is a very real chance of recontamination due to cap failure caused by major flooding, scouring, prop wash, tidal action and the expected Cascadia subduction zone earthquake.
Capping should not be the default choice for remediation, but should be used only where dredging cannot be successfully completed.

10) Best Management Practices

- **sequence work to avoid recontamination** - as a general rule working upriver to downriver will help to avoid recontamination. Plans also need to take into account the influence of tides on cleanup action during construction.
- **compliance with Clean Water Ac**t - all construction activities conducted for the cleanup must comply with the Clean Water Act.
- **use hydraulic and environmental bucket for dredging** - methods of removal need to be utilized that minimize incidental release of material during removal. On site supervision of removal and construction activity by EPA technical staff is needed at all times to ensure that all action is performanced according to best practices to avoid incidental release.

11) Economic enhancement with cleanup

Full implementation of cleanup of this stretch of the Willamette River will require employment of many people to complete the work. In preparation for this, the EPA should support utilization of job training programs, union apprenticeships and Portland Community College programs to prepare low income residents within the areas adjacent to the Superfund site to take jobs constructing the cleanup remedy and in restoration work.

Contracts for conducting work on the site should include

- clear requirements for worker safety,
- requirement that wages and benefits meet prevailing wage standards for similar work in the Portland market,
- preference for local employment, affirmative action and union representation.

12) Upland Source controls

Regardless of what methods are utilized in the cleanup remedy, the cleanup can only succeed if upland source control is complete and successful. To ensure that upland source control is successful a full range of monitoring metrics should be used to evaluate with adequate certainty, whether any recontamination occurs. Upland source control actions overseen by DEQ must meet or exceed the requirements of the Superfund site remedy to ensure that those upland sources do not hinder success of the Superfund site remedy.

EPA needs to re-examine completeness of Early Actions or Hotspot Activities already conducted, as well as success of the McCormick & Baxter site remedy to ensure that prior actions benefit the successful completion of the river cleanup. The remedy implemented at the McCormick & Baxter site needs to be reviewed in relation to the RALs and PRGs for the Portland Harbor site surrounding it, to ensure that the overall effectiveness of the Portland Harbor remedy is not diminished.

Summary

Alternative G with enhancements is the option required by the Portland Harbor Community Advisory Group, and our partners because it is the only option that:

- addresses the issue of environmental justice;
- meets EPA's own criteria;
- meets the community goal of fish that are as healthy as those upriver in a reasonable time frame;
- lowers the likelihood of recontamination by removing contaminants from the river.

The final Record Of Decision issued by EPA must include;

- Legally enforceable requirements for upland source control;
- Ongoing monitoring during the construction phase to identify and correct negative impacts on livability in the surrounding areas;
- fish tissue monitoring that is consistent in scheduling and methodology;
- community involvement must be defined and include technical meetings every month or quarter throughout the entire process of remediation design and construction;
- data gathering must be completed in a uniform fashion to ensure that results over time can be accurately compared to measure success;
- performance/assurance bonds must be in place in case more work needs to be done if the chosen remedy does not succeed.

Submitted by

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